

TPEA Data Newsletter

March 2007

Number 2



Cherokee Nation Becomes Second Tribe to Exchange Data on the Exchange Network

by Janice C. Bryant, OEI

On October 31, 2006, the Cherokee Nation became the second tribe to exchange data on the Exchange Network. This success was the result of many hours of hard work and was facilitated by the Exchange Network Grant Program. The grant funding helped the Environmental Programs Project Manager, Randy Gee to develop a relationship with the Information Technology (IT) Department of the Cherokee Nation and Co-Project Manager, Tonia Williams. Buy-in from the IT department was critical and a key step in the development of the Cherokee Nation Node.

The grant funds were used for both development and operations.

Development Activities: The Environmental Program team mapped the data from the Cherokee Nation offices, schools, clinics, casinos, facilities both on and off tribal jurisdictional boundaries, and from open dumps.

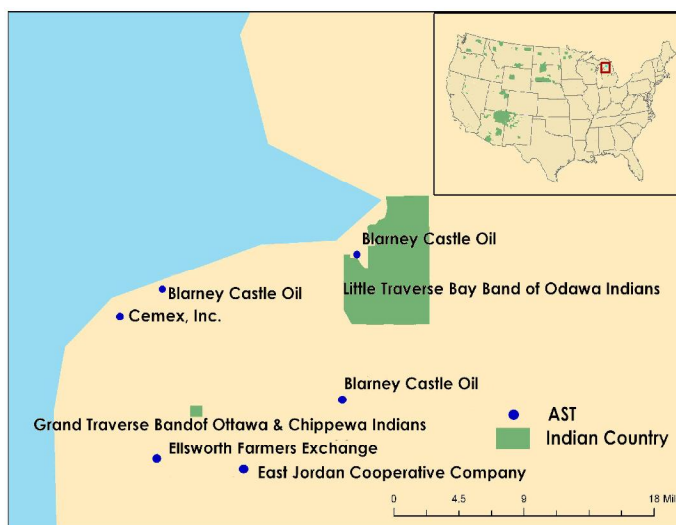
Operation Activities: Supported the actual node and data exchange. This information was exchanged using the Facility Registry System (FRS) schema.

Future plans include sending the State of Oklahoma facility data to augment data recently requested by the EPA. Randy Gee is also interested in engaging the Small Partners Project Integrated Project Team in expanding the FRS schema for the open dump data exchange. The expanded FRS schema would contain information used by the Indian Health Service, the federal lead on open dump data.

AIEO Obtains Aboveground Storage Tank Facility Information

by Willnetta Ball, AIEO ORISE Intern

The American Indian Environmental Office obtained information on Aboveground Storage Tank (AST) facilities in Region 5 from William Nichols EPA, Office of Emergency Management, Regulatory and Policy Development Office. The AST data was provided to EPA from the Sensitivity Atlas Project Coordinator of the Upper Mississippi River Basin Association in Minnesota. The map displays AST facilities in Michigan around the Little Traverse Band of Odawa Indians and the Grand Traverse Band of Ottawa and Chippewa Indians in Michigan. The AST information for Region 5 will be displayed in the Tribal Information Management System (TIMS).



Aboveground Storage Tank (AST) Facilities in Michigan

Map created by Willnetta Ball, AIEO ORISE Intern, using, ArcGIS 9: ArcMap.

IHS and EPA Exchange Data

by Heather Goss, AIEO

Safe, adequate water supplies and waste disposal facilities are lacking in approximately 12% of American Indian and Alaska Native homes, in contrast with only 1% of homes in the general U.S. population. These conditions can lead to poor health conditions and high demand for medical services. In consultation with tribes, Indian Health Services (IHS) engineers produce an annual Sanitation Deficiency Survey, which identifies and prioritizes water, sewer, and solid waste facilities construction projects in Indian country for the year. Meanwhile, the Environmental Protection Agency (EPA) collects data on safe drinking water compliance and discharge permits. The IHS and EPA are working together to share information from their respective databases through Exchange Network technology. These automatic data exchanges will support both agencies in their efforts to improve environmental health in Indian country.

FY 2006 Exchange Network Grants Announced

by Janice Bryant, OEI

The Fiscal Year 2006 Exchange Network Grants were announced on September 29, 2006. Of the 96 applications received 31 were tribal applications, and ultimately ten tribes received a total of nearly \$2.1 million dollars. Below is a list of the tribes that received grants and descriptions of their projects.

Alaska Inter-Tribal Council: Research existing contaminant information and identify information gaps and needs relevant to Alaskan rural villages. Identify Exchange Network partners, and develop a node and data exchange.

Salt River Pima-Maricopa Indian Community: Develop infrastructure and an Air Quality Subsystem (AQS) data exchange with integrated Geospatial data.

Yurok Tribe: Develop infrastructure, expand the existing database, create modules to receive and export hydrological information. The Yurok Tribe will also share their database and knowledge with tribes in the Klamath River Basin.

Santa Ysabel Band of Diegueno Indians:

Upgrade the current Internet connection, to create a reliable and stable Internet connection for participation in the Exchange Network. Create an operational Exchange Network node and exchange Safe Drinking Water Information System (SDWIS), STORage and RETrieval system (STORET) and State Water Project (SWP) data.

Shoshone Bannock Tribe: The Air Quality Program Office will upgrade their ResourceVue application, which includes AQS and National Emissions Inventory (NEI) data. Translation and validation tools will be developed for AQS and NEI.

Nez Perce Tribe: Build an EPA compliant database structure for improved air and water quality data transfer to EPA's STORET, AQS, and AIRNow databases. Construct a robust air monitoring and smoke management system.

The Aroostook Band of Micmacs: Build an infrastructure to automatically collect drinking water data from individual instruments and integrate the data into Safe Drinking Water Information System/Federal Version (SDWIS/FED).

Mni Sose Intertribal Water Rights Coalition: To assess, collect, evaluate, and exchange environmental data on their node for the reservations of Region 7.

Stillaguamish Indian Tribe: Acquire and deploy the hardware and software infrastructure for a high bandwidth internet connection and Exchange Network node. Develop Water Quality Exchange (WQX) Network data exchange.

Hualapai Tribe: Continue the development of their database to include Geographic Information System (GIS) capabilities for analysis and Web-based purposes, and for incorporation of additional environmental data that may be readily shared with the EPA.

Tribe	Award Amount
Alaska Inter-Tribal Council	\$392,879
Salt River Pima-Maricopa Indian Community	\$203,298
Yurok Tribe	\$150,000
Santa Ysabel Band of Diegueno Indians	\$251,303
Shoshone-Bannock Tribe	\$142,203
Nez Perce Tribe	\$120,856
Aroostook Band of Micmacs	\$98,730
Mni Sose Intertribal Water Rights Coalition	\$363,200
Stillaguamish Indian Tribe	\$148,842
Hualapai Tribe	\$122,500

For more information on tribal Exchange Network projects visit:
<http://www.epa.gov/exchangenetwork>.

Sweet Success! Yurok Tribe Goes Real-Time

by Kevin McKernan

The Yurok Tribe has established a real-time continuous environmental monitoring network throughout the Lower Klamath River over the past five years with the use of EPA grant funds such as the Indian General Assistance Program, Clean Water Act (106, 104(b)(3), 319), Exchange Network, and Clean Air Act 103. The tribe would not have been able to accomplish such strides without the program flexibility of the Performance Partnership Grant authority, support from the Tribal Council and community, and a dedicated staff.

Network Components:

The network was achieved through the establishment of permanent stations equipped with Geosynchronous Orbiting Environmental Satellite (GOES) transmitters, a Domestic Satellite (DOMSAT) base station, National Oceanic and Atmospheric Administration (NOAA) satellite addresses, a Linux server, in-house custom designed software and database/web programming, and a talented crew. It truly is a team effort of multiple disciplines. The real-time network is just one component of a comprehensive environmental monitoring program with multiple objectives. The real-time network serves many beneficial purposes, yet also has a few restrictions.

Real-time Advantages:

Real-time data allows tribal staff and anyone with access to the worldwide web to view a wide range of environmental conditions as they happen. This informs the Yurok Tribe and other agencies throughout the Klamath Basin of conditions such as water temperature, river levels, and air quality in relation to management actions. The Klamath River is regulated by dams on both the Klamath mainstem and Trinity Rivers (the largest tributary). As decisions are made about flow releases from the dams, based on fish health for example, the real-time data provides information about the resulting effects on water quality. Other management-related actions and natural phenomena such as floods and wildfires can be viewed in the same manner.

Another benefit of real-time data is the increased integrity and completeness of the dataset. By viewing all of the monitoring sites daily at the click of a button, program managers are able to recognize malfunctions in monitoring equipment and other

anomalies and address issues sooner than they would with only regularly scheduled site visits. This results in a more robust data set with fewer erroneous or missing measurements. Also, since the data is streamed in real-time to a temporary database for use by the webpage it serves as a backup of the data being collected in the field. In rare cases “dataloggers” are damaged resulting in the loss of an entire dataset. With the real-time network acting as a backup “datalogger,” this data can be retrieved.

The real-time network greatly increases the timeliness and effectiveness of emergency response efforts related to environmental conditions. For example, recent smoke from wildfires has reached unhealthy and even hazardous levels on portions of the reservation and surrounding communities. Responding to a public health threat from heavy smoke events is probably one of the most difficult to handle given the sporadic behavior of the smoke generation and distribution. Through the use of the real-time data, not only can emergency managers make more informed decisions, but any person with access to the worldwide web can also view current conditions and make decisions based on the data.



Monica Hiner checks a GOES satellite equipped monitoring station, that allows for real-time capability.

Drawbacks and Considerations:

There are also some downsides to a real-time network. Since real-time data has not gone through the rigorous quality assurance and quality control procedures for data management that the Yurok Tribe follows under EPA-approved quality assurance program plans, the use of this data is limited.

The Yurok Tribe is very cautious in its treatment and presentation of such data by labeling it all as “provisional” and that it should not be cited, used for analysis, or used for regulatory purposes. Due to the possibility of equipment failure or other errors as mentioned above, if the data is not qualified as provisional, the Yurok Tribe and public could have the potential of using erroneous and differing data sets. Similar to the United States Geological Survey (USGS), the Yurok Tribe only allows the public to view the last 30 days of real-time data in order to further curb the potential for erroneous data usage.

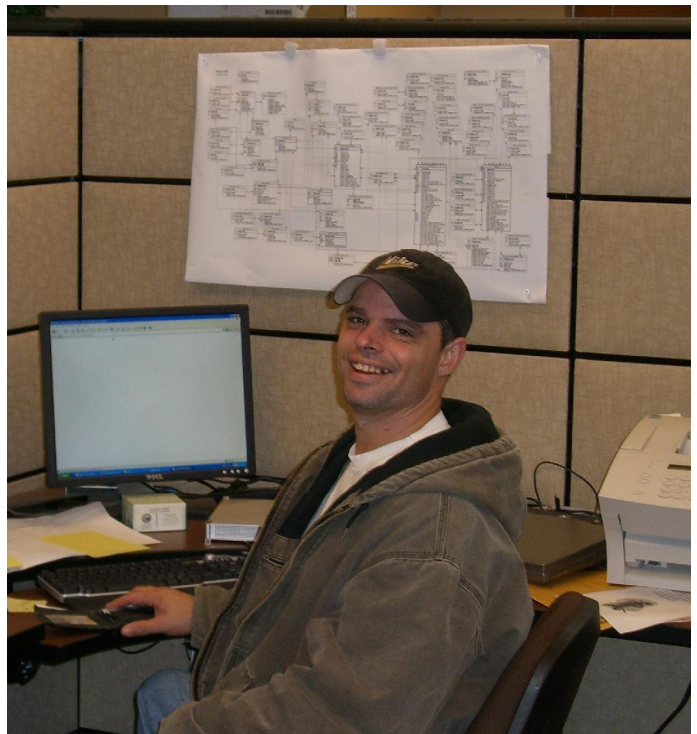
Data that has undergone quality assurance is finalized at the end of each year and made available to the public in the form of reports. The Yurok Tribe plans to make official datasets available on a query-based web interface in the near future. Using primarily Exchange Network grant funds, the Yurok Tribe is making great strides in the development of the Yurok Environmental Data Storage System (YEDSS). This is an SQL-based database which will have the capability to export data to various EPA databases such as STORET and AQS, while providing the ability to look at all environmental data across various media in one location after it has gone through our quality assurance process. The YEDSS also reduces the potential for user-derived errors in data through the use of direct file import and an automated quality assurance review.

Yurok Tribe Environmental Program Website:

<http://www.yuroktribe.org/departments/ytep/ytep.htm>

Network Monitoring Components:

- Four Klamath River tributary gaging stations recording: stream flow, water temperature, turbidity, and rainfall in 15-minute intervals year round.
- Four mainstem Klamath River water quality datasondes: recording water temperature, pH, dissolved oxygen and specific conductivity in 30-minute intervals May through October.
- Four weather stations (9 parameters), two recording particulate matter concentrations (PM2.5) in hourly intervals year round, and one mobile station used for discrete events and studies.
- A Klamath River estuary gage recording stage and tidal height in 15 minute intervals year round.



Cody Watt, Database/Web Coordinator, the brains behind the operation. Notice the WQX schema hanging above him.

PUBLIC TPEA SITES

TPEA has two sites that are open to the public:

Tribal Windows to the Environment

<http://iaspub.epa.gov/tims/twe.html>

This site gives you a link to EnviroMapper for Tribes, which is a GIS application that lists regulated facilities in the zip codes that overlap with tribes.

Tribal Contacts Database

https://iasint.rtpnc.epa.gov/TIMS/contact_ro.html

This site gives you names and addresses of tribal leaders and tribal environmental directors, as well as mailing addresses that can be printed as labels.